dr. ir. Rein Houthooft

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Current position

Research Scientist, OpenAI . . . . www.openai.com

Areas of specialization

Artificial Intelligence • Machine Learning • Software Engineering

Experience

2014-2017	Doctoral Researcher, imec	www.imec-int.com
2016	Machine Learning Research Intern, OpenAI	www.openai.com
2012	Software Engineering Intern, Solvace	www.solvace.com
2011	Combinatorial Optimization Researcher, ArcelorMittal – KU Leuven	set.kuleuven.be/codes

Education

2014-2017	Ph.D. in Computer Science Engineering	Universiteit Gent, Belgium
2016	Visiting Student Researcher	University of California—Berkeley, USA
2012-2014	M.Sc. in Computer Science Engineering	Universiteit Gent, Belgium
2008-2012	B.Sc.-M.Sc. in Industrial Sciences	Associatie KU Leuven, Belgium

Grants, honors & awards

2015	Travel Grant	Research Foundation – Flanders (FWO)
	Doctoral Fellowship	Research Foundation – Flanders (FWO)
2014	Best Paper Award	IEEE RNDM Technical Program Committee
2012	Laureate IE-Prizes	IE-Net Engineering Society

Professional service

Publications & talks

PREPRINTS

2018   Houthooft, R., Chen, R. Y., Isola, P., Stadie, B. C., Wolski, F., Ho, j., Abbeel, P. (2018). Evolved Policy Gradients. *arXiv:1802.04821*.

CONFERENCE ARTICLES

2018   Stadie, B. C., Yang, G., Houthooft, R., Chen, X., Duan, Y., Yuhuai, W., Abbeel, P., Sutskever, I. (2018). Some Considerations on Learning to Explore via Meta-Reinforcement Learning. *International Conference on Learning Representations (ICLR), Workshop Track*.

Plappert, M., Houthooft, R., Dhariwal, P., Sidor, S., Chen, R.Y., Chen, X., Asfour, Y., Abbeel, P., and Andrychowicz, M. (2018). Parameter Space Noise for Exploration. *International Conference on Learning Representations (ICLR)*.

2017   Tang, H., Houthooft, R., Foote, D., Stooke, A., Chen, X., Duan, Y., Schulman, J., De Turck, F., and Abbeel, P. (2017). #Exploration: A study of count-based exploration for deep reinforcement learning. In *Advances in Neural Information Processing Systems (NIPS)*, Long Beach, USA

2016   Houthooft, R., Chen, X., Duan, Y., Schulman, J., De Turck, F., and Abbeel, P. (2016). VIME: Variational information maximizing exploration. In *Advances in Neural Information Processing Systems (NIPS)*, pages 1109–1117, Barcelona, Spain.

Chen, X., Duan, Y., Houthooft, R., Schulman, J., Sutskever, I., and Abbeel, P. (2016). InfoGAN: Interpretable representation learning by information maximizing generative adversarial nets. In *Advances in Neural Information Processing Systems (NIPS)*, pages 2172–2180, Barcelona, Spain.

Duan, Y., Chen, X., Houthooft, R., Schulman, J., and Abbeel, P. (2016). Benchmarking deep reinforcement learning for continuous control. In *Proceedings of the 33rd International Conference on Machine Learning (ICML)*, pages 1329–1338, New York, USA.

Houthooft, R., De Boom, C., Verstichel, S., Ongenae, F., and De Turck, F. (2016). Structured output prediction for semantic perception in autonomous vehicles. In *Proceedings of the 30th AAAI Conference on Artificial Intelligence*, Phoenix, Arizona, USA.

2015   Houthooft, R., Sahhaf, S., Tavernier, W., De Turck, F., Colle, D., and Pickavet, M. (2015). Robust geometric forest routing with tunable load balancing. In *Proceedings of the IEEE Conference on Computer Communications (INFOCOM)*, pages 1382–1390, Hong Kong, P.R. China.

2014   Houthooft, R., Sahhaf, S., Tavernier, W., De Turck, F., Colle, D., and Pickavet, M. (2014). Fault-tolerant greedy forest routing for complex networks. In *Proceedings of the 6th International Workshop on Reliable Networks Design and Modeling (RNDM)*, pages 1–8, Barcelona, Spain.

De Backere, F., Hanssens, B., Heynssens, R., Houthooft, R., Zuliani, A., Verstichel, S., Dhoedt, B., and De Turck, F. (2014). Design of a security mechanism for RESTful Web service communica-

tion through mobile clients. In *Proceedings of the IEEE/IFIP Network Operations and Management Symposium (NOMS)*, pages 1–6, Krakow, Poland.

Journal articles

2016 Houthooft, R. and De Turck, F. (2016). Integrated inference and learning of neural factors in structural support vector machines. *Pattern Recognition*, 59:292–301.

2015 Houthooft, R., Ruyssinck, J., van der Herten, J., Stijven, S., Couckuyt, I., Gadeyne, B., Ongenae, F., Colpaert, K., Decruyenaere, J., Dhaene, T., and De Turck, F. (2015). Predictive modelling of survival and length of stay in critically ill patients using sequential organ failure scores. *Artificial Intelligence in Medicine*, 63(3):191 – 207.

Houthooft, R., Sahhaf, S., Tavernier, W., De Turck, F., Colle, D., and Pickavet, M. (2015). Optimizing robustness in geometric routing via embedding redundancy and regeneration. *Networks*, 66(4):320–334.

Patent applications

2016 Houthooft, R., Verstichel, S., Debilde, B., and Foster, C. A controller for a working vehicle. E.U. Patent Application No. 16177346.0 - 1905. U.S. Patent Application No. 15/199,090. Filed 30 June 2016.